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Case Report

Florid cemento-osseous dysplasia (FCOD): case report

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Abstract Florid cemento-osseous dysplasia (FCOD) is a type of fibro-osseous lesion and represents a reactive process in which normal bone is replaced by poorly cellularized cementum-like materials and cellular fibrous connective tissues. It is strictly localized to the tooth-bearing or edentulous areas, often occurring bilaterally with symmetric involvements. In this case report, a mixed radiolucent and radiopaque lesion at the periapical area of the right mandibular second molar of a 46-year-old female patient was misdiagnosed as chronic apical periodontitis initially by clinical manifestation and radiographic finding on a periapical radiograph. The tooth #47 was a distal abutment tooth of a three-unit bridge from teeth #45—#47. No decay of teeth #45 and #47 was found when the bridge was removed. Electric pulp test revealed that the tooth #47 was a vital-pulp tooth. Panoramic radiography showed a similar mixed radiolucent and radiopaque lesion at the edentulous area of tooth #37. The symmetric distribution of the two lesions with no alveolar bone expansion and the positive vitality test of the involved tooth supported the diagnosis of FCOD for this case. No endodontic treatment or surgical biopsy was performed. The patient was instructed to undergo regular clinical and radiographic follow-up to monitor the change of the lesion. We suggest that when a radiolucent or mixed lesion occurs at the periapical area of a vital-pulp tooth, panoramic radiography may

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help differentiate an inflammatory periapical lesion from a lesion of cemento-osseous dysplasia (COD).

Introduction

Fibro-osseous lesions of the jaws include fibrous dysplasia, ossifying fibroma, and cemento-osseous dysplasia (COD). COD occurs in the tooth-bearing areas of the jaws and is probably the most common fibro-osseous lesion encountered in clinical practice.[1] There are three types of COD lesions, namely focal, periapical and florid COD. The COD lesion usually requires no treatment, whereas the other two fibro-osseous lesions need surgical recontouring or total excision.[1] Therefore, the differential diagnosis of three fibro-osseous lesions is important because misdiagnosis may lead to unnecessary endodontic treatment, incisional biopsy or surgical removal. This article reported a case of florid COD (FCOD) that was misdiagnosed as chronic apical periodontitis initially. The diagnosis and treatment sequence of this case was discussed.

Case presentation

A 46-year-old Taiwanese female patient was referred from a general dental practitioner to the General Dentistry Department of the Chang Gung Memorial Hospital in Taipei for evaluation and treatment of a right mandibular second molar with chronic apical periodontitis and occasional mild pain. The patient had ankylosing spondylitis without receiving any medication control. Oral examination revealed that the right mandibular first molar was missing and there was a three-unit fixed partial denture sitting on teeth #45 and #47. No percussion and biting pain of tooth #47 or alveolar bone expansion at tooth #47 area was noted, except for a mild palpation pain at tooth #47.

Figure 1 Initial periapical radiograph showing a mixed radiolucent and radiopaque lesion at the periapical area of the right mandibular second molar.

Periapical radiography revealed a mixed radiolucent and radiopaque lesion at the periapical area of tooth #47 (Fig. 1). The lesion was diagnosed as chronic apical periodontitis in the beginning, and the tooth #47 was scheduled to undergo root canal treatment after removal of the fixed partial denture. Once the fixed partial denture was removed, no decay was found on the crown surface of both abutment teeth. The patient felt very sensitive while an explorer scratched the crown surface of two abutment teeth. Electric pulp test demonstrated that both abutment teeth had a vital pulp. Therefore, panoramic radiography was made for further evaluation. A similar mixed radiolucent and radiopaque lesion was found at the edentulous area of tooth #37. These two mixed lesions showed a mirror-image distribution (Fig. 2). Because of the symmetric distribution of the two mixed lesions with no alveolar bone expansion and the positive vitality test of tooth #47, the two mixed lesions were finally diagnosed as FCOD.

After coverage of the two abutment teeth with a temporary resin bridge, all the symptoms disappeared. The patient was instructed to undergo regular clinical and radiographic follow-up to monitor the change of the lesion. Eight-month follow-up periapical (Fig. 3) and panoramic (Fig. 4) radiographs showed no significant radiographic change of the mandibular bilateral lesions. Therefore, a permanent three-unit fixed partial denture was fabricated and set over the teeth #45 and #47.

Discussion

COD represents a reactive process in which normal bone is replaced by a poorly cellularized cementum-like material and cellular fibrous connective tissue. They are classified, depending on clinical and radiographic findings, into three subtypes: periapical (periapical region of the anterior

Figure 2 Initial panoramic radiograph exhibiting bilateral mixed radiolucent and radiopaque mirror-image lesions at the periapical area of the right mandibular second molar and the edentulous area of the left mandibular second molar.

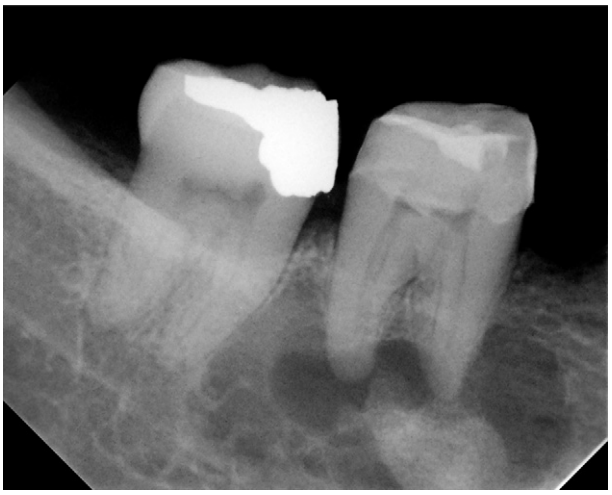

Figure 3 Eight-month follow-up periapical radiograph showing a mixed radiolucent and radiopaque lesion at the periapical area of the right mandibular second molar. Comparing to the initial periapical radiograph, no significant change of the lesion was found.

mandible), focal (single lesion), and florid (multifocal involvement not limited to the anterior mandible).[1] FCOD occurs predominantly in black females (90%) with a mean age of 42 years at diagnosis.[2,3] An intermediate frequency among east Asian population has also been described.[1] Radiographically, FCOD may appear as radiolucent, mixed or radiopaque lesions, but most frequently they present as radiopaque, irregular or lobulated masses surrounded by a rim of radiolucency.[4–6] FCOD may be completely asymptomatic and found on routine radiographic examination, or may present with dull pain, alveolar sinus tract, and exposure of avascular bone into the oral cavity due to secondary infection. Rarely are these lesions expansile.[1-3,7]

For our case, the radiopaque lesion alone at the periapical area of the mesial root of tooth #47 may be misdiagnosed as idiopathic osteosclerosis or condensing osteitis due to the limited presentation of the periapical radiograph. Clinically, preparation of abutment teeth for a fixed prosthesis may irritate pulp, result in chronic pulpitis, and finally lead to a periapical lesion. As for this case, when mild pain of the tooth was present, chronic apical periodontitis might be the first impression. However, following the removal of the fixed partial denture, the positive vitality test of tooth #47 could rule out the clinical diagnoses of chronic apical periodontitis and condensing osteitis, because these two diseases were usually associated with a tooth with a necrotic pulp. When the panoramic radiography was made, it showed a radiolucent and radiopaque combined lesion. In this situation, differential diagnoses should include FCOD, adenomatoid odontogenic tumor (AOT), odontoma, ameloblastic fibro-odontoma, osteoid osteoma, osteoblastoma, Paget's disease, chronic diffuse sclerosing osteomyelitis, calcifying epithelial odontogenic tumor (CEOT), ossifying fibroma, and fibrous dysplasia.

AOT, odontoma, and ameloblastic fibro-odontoma generally occur in children and are in association with impacted teeth.[1] Moreover, AOT also has a site predilection for the upper anterior region. Therefore, these three lesions can be roughly eliminated from the list of differential diagnosis.[1,8] Osteoid osteoma and osteoblastoma occur during the second decade of life. The dull and nocturnal pain that FCOD lacks is the major symptom associated with

Figure 4 Eight-month follow-up panoramic radiograph exhibiting bilateral mixed radiolucent and radiopaque mirror-image lesions at the periapical area of the right mandibular second molar and the edentulous area of the left mandibular second molar. Comparing to the initial panoramic radiograph, no significant change of the two lesions was found.

osteoid osteoma and osteoblastoma.[8] Paget's disease had a site preponderance for the maxilla and can be ruled out after a blood examination demonstrating the high serum alkaline phosphate level, which is within normal limit in patients with FOCD.[1,8] Chronic diffuse sclerosing osteomyelitis is an infectious process and is typified by a chronic course with acute exacerbations of pain, swelling and occasional drainage. However, FCOD is usually asymptomatic and lacks any inflammatory reaction and sign.[1,8] CEOT, ossifying fibroma and fibrous dysplasia are benign, slow-growing expansile lesions, while COD rarely shows bone expansion. The most important radiographic feature of ossifying fibroma is a well-circumscribed lesion that is not necessarily located at the periapical area. The classic radiographic presentation of fibrous dysplasia is a diffuse lesion with ground-glass appearance.[8] The symmetric distribution of the two mixed lesions without alveolar bone expansion and the positive vitality test of the involved tooth supported the diagnosis of FCOD for this case.

It was postulated that gingivitis induced by the ill-fitting margin of the fixed partial denture might contribute to the mild pain of tooth #47 in this case. All the symptoms disappeared while the etiological factor (the bridge) was removed. FCOD is usually a benign bone reactive process and requires no treatment. Unnecessary surgical treatment of the lesions (including biopsy) can expose the poorly vascularized bone tissue to the oral environment and incur secondary infection. Every effort should be made to avoid extraction of teeth involved by FCOD, because poor socket healing and even sequestrum formation following tooth extraction may occur. Biopsy procedure increases the risk of infection or fracture of the jaw and it is not normally indicated to surgically remove these lesions, as this often requires extensive surgery. Besides, treatment of secondary infection of FCOD lesions can be difficult and complicated.[2,4–6,9,10]

Normally, the pathologic lesion in the jaws requires a diagnosis based on clinical presentation, epidemiology, radiographic features and histopathologic findings. However, diagnosis of COD relies on epidemiology, radiology and clinical findings only. No matter endodontic treatments on affected teeth or even biopsies performed on lesions, it may precipitate infection that is difficult to control without extensive surgical intervention. In fact, clinicians should not do invasive treatment on COD lesions if there is no complication. At the same time, patients with COD lesions should undergo clinical and radiographic follow-up for several years to ensure there is no destructive change of the jaws.[2,4] Learning from this case, we suggest that when a radiolucent or mixed lesion occurs at the periapical area of a vital-pulp tooth, panoramic radiography may help differentiate an inflammatory periapical lesion from a COD lesion.

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